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Kurt A. Summe, Reg. No. 36,023

PATENT

ATTY, DOCKET NO: DEME-106:-/119

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Kovac et al.

Art Unit:

3732

Serial No.

10/656,490

Examiner:

Not yet assigned

Filed:

September 5, 2003

Title:

APPARATUS AND METHOD FOR CURING MATERIALS

WITH RADIATION

Cincinnati, Ohio

August 31, 2004

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

## INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of candor and good faith imposed by 37 CFR §1.56 and means of complying therewith according to 37 CFR §§1.97 and 1.98, the references listed on the attached forms PTO-1449 are called to the attention of the U.S. Patent and Trademark Office in connection with the above-identified application.

Subject to the Office's waiver of providing copies of U.S. patents and published applications for applications filed after June 30, 2003, only copies of the "Foreign" and "Other" patent references are provided, since this application was filed on September 5, 2003, and therefore, subsequent to June 30, 2003.

The Examiner is respectfully requested to review each reference cited and to note the review on the attached PTO-1449 forms, and to reach their own independent determination of its materiality, if any.

To the best of Applicant's knowledge and belief, this Information Disclosure Statement is being filed prior to the receipt of a first Office Action on the merits of this case, and therefore, no fees are believed to be due. However, if any charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

Kurt A. Summe, Reg. No. 36,023

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Facsimile: (513) 241-2324

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SERIAL NO. **SUBSTITUTE FORM PTO-1449** U.S. DEPARTMENT OF COMMERCE ATTY, DOCKET NO. PATENT AND TRADEMARK OFFICE DEME/10C 10/656,490 (MODIFIED) APPLICANT INFORMATION DISCLOSURE STATEMENT BY APPLICANT Kovac et al. **GROUP FILING DATE** (Use several sheets if necessary) September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS** FILING DATE ISSUE **EXAMINER** IF APPROPRIATE **SUBCLASS CLASS** INITIAL PATENT NUMBER DATE PATENTEE 736 02/05/80 128 B.A 6 4 Schlager 2 0 9 9 0 07/01/80 Tsukada et al. B.B 4 2 2 6 5 10/21/80 Gonser B.C 9 8 2 3 0 5 3 10/1980 Reimers 433 29 B.D 01/11/80 2 6 Scheer et al. 3 3 4 9 B.E 2 2 7 7/1981 B.F 8 0 3 Vincent 11/1981 250 504 2 8 0 9 8 6 Herold B.G 4 7/1982 126 438 7 3 3 5 9 Popovich et al. B.H 5 3 5/1983 362 32 B.I 4 3 8 4 4 Gonser 5 07/05/83 B.J 4 3 9 1 8 8 Matsui 126 B.K 4 3 9 8 8 8 5 8/1983 Loge et al. 433 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS **TRANSLATION DOCUMENT PUBLICATION COUNTRY OR SUBCLASS** (YES/NO) **PATENT OFFICE CLASS** DATE NUMBER **A61N** 5/06 N/A EP 0 672 435 09/20/95 Europe B.L 10/25/95 B.M EO 0 678 282 Europe 05/01/96 Europe N/A B.N EP 0 709 698 EP 0 736 307 10/09/96 Europe **A61N** 5/06 N/A B.O B.P EP 0 740 567 11/06/02 Europe **A61N** 5/06 N/A 19/00 No (in German) A61C B.Q EP 0 755 662 07/04/96 Europe OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Eibofner et al., Lighting Fixture for a Medical or Dental Handpiece, US2001/O007739, U.S. Patent Application Publication, B.R published 7/12/O1 B.S European Search Report, February 27, 2004 Feltzer, A. J. et al., Influence of Light Intensity on Polymerization Shrinkage and Integrity of Restoration-Cavity Interface, B.T Eur. J. Oral Sciences, 103: 322-326, 1995 **EXAMINER** DATE CONSIDERED

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Sheet 3 (C) of 15

U.S. DEPARTMENT OF COMMERCE ATTY, DOCKET NO. SERIAL NO. SUBSTITUTE FORM PTO-1449 10/656,490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) INFORMATION DISCLOSURE **APPLICANT** STATEMENT BY APPLICANT Kovac et al. **GROUP** FILING DATE (Use several sheets if necessary) September 5, 2003 (37 CFR 1.98(b)) 3732 U.S. PATENT DOCUMENTS FILING DATE ISSUE EXAMINER IF APPROPRIATE **SUBCLASS** CLASS INITIAL PATENT NUMBER DATE PATENTEE 10/25/83 Herold et al. C.A 2 3 4 5 05/01/84 Johnson C.B 4 8 5 8 4 4 422 186.3 5/22/84 Bussiere et al. C.C 4 4 5 0 1 3 9 09/09/86 **Betush** C.D 4 6 0 6 3 0 229 433 C.E 4 6 6 6 4 0 6 5/1987 Kanca, III 5 7 3 3 5 3 06/16/87 Nevin C.F 4 7 2 9 12/29/87 Bussiere et al. C.G 4 1 6 6 3/1988 Masami et al. 362 235 C.H 4 7 2 9 0 7 6 7 07/12/88 C.I 7 5 3 8 Cooper et al. 1 9 2 6 9 2 12/20/88 Herold et al. C.J 4 7 0 9 3/1989 Snedden 433 91 C.K 4 8 1 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS **TRANSLATION PUBLICATION** COUNTRY OR **DOCUMENT SUBCLASS** (YES/NO) NUMBER DATE PATENT OFFICE **CLASS** 7/16 N/A C.L EP 0 780 101 06/25/97 Europe A61C 19/00 No (in German) A61C C.M EP 0 780 103 06/25/97 Europe 03/25/98 C.N EP 0 830 850 Europe A61C 5/02 N/A C.O EP 0 830 851 05/02/02 Europe A61C 5/02 N/A C.P EP 0 830 852 05/06/02 Europe A61C 19/00 No (in German) 11/25/98 C.Q EP 0 879 582 Europe OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Gemunder et al., Photo Curing Light System Having Modulated Light Intensity Control, US2002/O014864, U.S. Patent C.R Application Publication, published 2/7/O2 Gordon et al., U.S. Patent Application Publication No. US 2002/O133970 A1, Pub. Date: Sep. 26, 2002 C.S Hooker et al., Optical Waveguide Concentrator and Illuminating Device, US20021/O051367, U.S.Patent Application C.T Publication, published 5/2/O2 DATE CONSIDERED **EXAMINER** EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered. Include a copy of this form with next communication to applicant.

SUBSTITUTE FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. SERIAL NO. 10/656,490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Kovac et al. **GROUP FILING DATE** (Use several sheets if necessary) September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS FILING DATE ISSUE** EXAMINER IF APPROPRIATE **SUBCLASS** PATENT NUMBER DATE **CLASS** INITIAL **PATENTEE** 6 3 5/1989 Fujimura et al. 433 29 D.A 8 2 4 7 2 06/06/89 D.B 4 8 3 6 8 Gonser 5 06/13/89 Herold et al. D.C 8 3 9 6 6 4 8 6 5 4 6 7/1989 Cuda 350 96.24 D.D 4 4 12/1989 250 504 8 4 8 9 D.E 4 8 8 Bryan 6/1990 313 500 D.F 9 3 5 6 6 5 Murata 4 6/1990 445 24 6 8 0 D.G 4 9 3 8 Lee 9 2 08/14/90 D.H 4 4 8 5 Friedman 10/1990 315 312 D.I 9 6 3 7 9 8 McDermott 51 D.J 4 9 9 9 3 0 3/1991 Kim 437 1 D.K 5 0 0 3 4 3 4 3/1991 Gonser et al. 362 32 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS TRANSLATION **PUBLICATION COUNTRY OR** DOCUMENT **CLASS** SUBCLASS (YES/NO) PATENT OFFICE NUMBER DATE A61C 19/00 No (in German) EP 0 880 945 12/02/98 D.L Europe Europe 1/08 N/A D.M EP 0 884 025 12/16/98 A61C D.N A61C 1/08 N/A EP 0 885 025 12/16/98 Europe A61C 1/08 No (in German) D.O EP 0 998 880 05/10/00 Europe D.P EP 1 031 326 08/30/O0 Europe A61C 19/00 No (in French) 19/00 N/A D.Q EP 1 090 607 04/11/01 Europe A61C OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Kanca, III, John and Suh, Byoung I., Pulse Activation: Reducing Resin-Based Composite Contraction Stresses at the D.R Enamel Cavosurface Margins, Am. J. of Dentistry, 12(3), 107-112, 1999 D.S Kato, Hiromasa, Relationship Between the Velocity of Polymerization and Adaptation to Dentin Cavity Wall of Light-Cured Composite, Dental Materials J. 6(1): 32-37, 1987 Koran, Peter and Kurschner, Ralf, Effect of Sequential versus Continuous Irradiation of a Light-Cured Resin Composite on D.T Shsrinkage, Viscosity, Adhesion, and Degree of Polymerization, Am. J. of Dentistry, 11, No. 1, 17-22, 1998 DATE CONSIDERED **EXAMINER** EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered.

SUBSTITUTE FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. SERIAL NO. 10/656,490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) INFORMATION DISCLOSURE **APPLICANT** STATEMENT BY APPLICANT Kovac et al. **GROUP FILING DATE** (Use several sheets if necessary) September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS** FILING DATE ISSUE **EXAMINER** IF APPROPRIATE INITIAL PATENT NUMBER DATE **CLASS** SUBCLASS **PATENTEE** 04/16/91 0 8 3 Werly E.A 5 5 7 4 05/21/91 E.B 0 1 0 Ascher 5 9 5 07/09/91 350 96.2 E.C 0 2 9 Hood E.D 5 5 7 6 05/26/92 Hood 118 641 1 2 0 9/1992 Patten et al. 433 229 5 7 4 E.E 4 1 9/1992 315 E.F 5 5 0 0 1 6 Sawase et al. 294 11/1992 362 206 8 7 9 McDermott E.G 5 1 6 1 2 6 9 11/1992 313 511 E.H 5 6 6 Goodrich 12/22/92 E.I 5 7 3 8 0 Yamakawa 1 03/30/93 E.J 5 1 9 8 6 8 Oppawsky E.K 5 2 0 1 6 5 5 4/1993 Friedman 433 29 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS DOCUMENT **PUBLICATION COUNTRY OR** TRANSLATION SUBCLASS (YES/NO) PATENT OFFICE **CLASS** NUMBER DATE EP 1 090 608 04/11/01 Europe A61C 19/O<sub>0</sub> N/A E.L 1/08 E.M EP 1 093 765 04/25/01 Europe A61C N/A 05/30/O1 A61C 19/00 N/A E.N EP 1 103 232 Europe EP 1 112 721 07/04/01 Europe A61C 1/08 No (in German) E.O E.P EP 1 138 276 10/04/01 Europe A61C 19/00 N/A 5/06 N/A E.Q EP 1 138 349 10/04/01 Europe **A61N** OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Lieb et al., Light-Emitting Handpiece for Curing Photopolymerizable Resins, US2003/O036031, published February 20, 2003 E.R LumiLeds Lighting LLC, Concept Evaluation Data Luxeon™ Star 5-Watt, Luxeon™ 5-Watt Prelminary Target Data Sheet, E.S Publication No. JP10 (Jan 2002) LumiLeds Lighting LLC, LED Application Note Dental Light Curing, LumiLeds Lighting Publication No. XXX(03.01), E.T Copyright@ 2000 **EXAMINER** DATE CONSIDERED EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered.

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SUBSTITUTE FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE ATTY, DOCKET NO. SERIAL NO. 10/656,490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE Kovac et al. STATEMENT BY APPLICANT **GROUP FILING DATE** (Use several sheets if necessary) September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS** FILING DATE ISSUE **EXAMINER** IF APPROPRIATE **CLASS SUBCLASS** PATENT NUMBER DATE INITIAL **PATENTEE** 08/03/93 Kennedy 320 13 F.A 5 2 3 3 2 8 3 2 09/07/93 Richardson et al. 210 745 F.B 5 2 4 6 0 2 11/1993 228 6.2 5 2 6 5 7 9 2 Harrah et al. F.C 5 2 8 6 2 9 01/11/94 Schlager et al. 356 313 F.D 208.1 2 2/1994 250 5 2 5 Imamura F.E 8 3 4 Friedman et al. 3/1994 433 29 F.F 5 2 9 0 1 6 9 04/12/94 2 Lansing et al. F.G 5 3 0 1 2 4 2 05/13/94 F.H 5 3 2 4 9 Kennedy 5/31/94 433 29 F.I 5 3 6 7 3 Hare 1 F.J 5 3 2 8 3 6 8 07/12/94 Lansing et al. F.K 5 3 8 2 6 12/6/94 Friedman 385 115 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS TRANSLATION DOCUMENT **PUBLICATION COUNTRY OR** SUBCLASS (YES/NO) PATENT OFFICE **CLASS** NUMBER DATE 19/00 05/22/02 A61C EP 1 206 923 Europe F.L 19/000 No (in German) EP 1 228 738 08/07/02 Europe A61C F.M Great Britain GB 2 212 010 7/1989 F.N 03/31/99 GB F.O GB 2 329 756 F.P JP 2 080 522 11/15/99 Japan 00 Abstract only F.Q JP 410033573 02/10/98 Japan A61C01 OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) LumiLeds Lighting LLC, <u>Application Bulletin AB XXX</u>, Luxeon™ Data Sheet, Publication No. xxxx-xxxx F.R F.S LumiLeds Lighting LLC, <u>Luxeon™ Power Light Sources of the Future</u>, January 2001 - Mike Holt LumiLeds Lighting LLC, Lumen Maintenance of White Luxeon™ Power Light Sources, Application Brief AB07, LumiLeds F.T Lighting, US LLC **EXAMINER** DATE CONSIDERED EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered. Include a copy of this form with next communication to applicant.

**SUBSTITUTE FORM PTO-1449** U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. SERIAL NO. 10/656.490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Kovac et al. **GROUP FILING DATE** (Use several sheets if necessary) September 5, 2003 3732 (37 CFR 1.98(b)) U.S. PATENT DOCUMENTS FILING DATE ISSUE **EXAMINER** IF APPROPRIATE **SUBCLASS** PATENT NUMBER DATE **CLASS** INITIAL **PATENTEE** 3 12/1994 Kondo et al. 174 268 G.A 5 3 5 0 5/30/95 362 119 G.B 4 2 7 6 8 Kennedy 7 10/10/95 Verderber G.C 5 5 6 4 1 1 G.D 5 7 2 9 11/28/95 Mann 320 21 Δ 1 5 8 6 01/30/96 Kipke et al. 433 37 7 6 2 G.E 4 2 05/28/96 250 492.1 G.F 5 5 3 9 2 Kennedy et al. 06/25/96 5 3 0 2 Shikano et al. G.G 5 6 3 372 43 5 5 7/1996 G.H 5 3 2 3 0 Abe 04/01/97 G.I 5 6 6 4 Cipolla 1 1 G.J 5 2 385 33 6 1 4 9 4/1997 Beach et al. G.K 5 6 3 4 7 1 1 6/1997 Kennedy et al. 362 119 FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS **TRANSLATION** DOCUMENT **PUBLICATION COUNTRY OR SUBCLASS** PATENT OFFICE **CLASS** (YES/NO) NUMBER DATE No JP 6-30275 1994 G.L Japan JP 8-141001 1996 Japan Yes G.M Yes JP 8-194786 1997 Japan G.N 1997 Yes G.O JP 9-10238 Japan G.P WO 00/13608 03/16/00 International A61C 19/00 N/A 5/06 N/A G.Q WO 00/14012 03/01/01 International **A61N** OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) LumiLeds Lighting LLC, Application Note 1149-5, Secondary Optics Design Considerations for Super Flux LEDs, Copyright G.R © 2000 LumiLeds Lighting, Obsoletes Publication No. 5968-1215E, Publication No. AN06 (3/O0) G.S Luxeon Dental Technical Data, Power Light Source, April, 2002 MacDougald et al., U.S. Patent Application Publication No. US 2003/0015667 A1, Pub. Date: Jan. 23, 2003 G.T **EXAMINER** DATE CONSIDERED EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered. Include a copy of this form with next communication to applicant.

**SUBSTITUTE FORM PTO-1449** U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. SERIAL NO. 10/656,490 PATENT AND TRADEMARK OFFICE DEME/10C (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Kovac et al. **GROUP** (Use several sheets if necessary) **FILING DATE** September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS** FILING DATE **ISSUE EXAMINER** IF APPROPRIATE **SUBCLASS** PATENT NUMBER DATE **PATENTEE CLASS** INITIAL 0 6 8/1997 Ignatius et al. 362 241 H.A 5 6 6 09/02/97 385 136 H.B 5 6 6 4 0 4 2 Kennedy 12/1997 Doiron et al. 257 99 5 6 9 8 8 6 6 H.C H.D 5 7 0 7 3 9 1/1998 Haitz 362 231 9 5 6 5 1/1998 Adam et al. 433 7 6 H.E 1 1 5 7 7 5/1998 Wei et al. 438 H.F 5 4 3 6 3 06/02/98 5 7 5 9 0 3 2 Bartel H.G 09/08.87 2 H.H 5 8 0 3 7 9 Tsimerman 01/2/99 H.I 5 8 5 7 7 6 Hochstein 5 9 1 2 4 0 06/15/99 Eibofner et al. H.J H.K 5 9 2 8 2 2 0 07/27/99 Shimoji FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS TRANSLATION **DOCUMENT PUBLICATION COUNTRY OR SUBCLASS** (YES/NO) NUMBER PATENT OFFICE **CLASS** DATE WO 00/15296 03/23/00 A61N 5/00 N/A International H.L 41/00 N/A WO 00/41726 07/20/00 International A61K H.M A61N 5/06 N/A WO 00/41767 07/20/00 International H.N 07/27/00 International **A61N** 5/01 N/A H.O WO 00/43067 H.P WO 00/43069 07/27/00 International A61N 5/06 N/A N/A 5/01 H.Q WO 00/43068 07/27/00 International **A61N** OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) H.R Mayes, Joe H., Curing Lights: An Overview, Unknown, pg 15-17 Mehl, A. et al., Physical Properties and Gap Formation of Light-Cured Composites With and Without 'Softstart-H.S Polymerization', J. of Dentistry, 25, 321-330, 1997 Ostler et al., Light Emitting Diode Light Source for Curing Dental Composites, U.S. Patent Application 2001/46652, H.T published November 29, 2001 **EXAMINER DATE CONSIDERED** EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered.

Sheet 9 (I) of \_\_15

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SERIAL NO. **SUBSTITUTE FORM PTO-1449** U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. PATENT AND TRADEMARK OFFICE 10/656,490 DEME/10C (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Kovac et al. **GROUP** (Use several sheets if necessary) FILING DATE September 5, 2003 3732 (37 CFR 1.98(b)) **U.S. PATENT DOCUMENTS** FILING DATE **EXAMINER** ISSUE IF APPROPRIATE **SUBCLASS CLASS** INITIAL PATENT NUMBER DATE PATENTEE 3 09/26/00 Eggler et al. J.A 6 5 5 8 2 12/05/00 Nagel J.B 1 3 6 5 9 0 12/12/00 Herold et al. J.C 1 0 5 J.D 6 1 6 1 9 3 7 12/19/00 Rosenstatter 8 4 01/02/01 Narusawa et al. 6 6 3 1 J.E 1 1 0 5 01/09/01 Sarmadi J.F 6 1 02/1301 8 6 7 8 6 Trushkowsky 6 J.G 1 3 5 02/27/01 9 0 Tsimerman J.H 6 1 3/13/01 433 29 J.I 6 2 0 0 3 4 Kovac, et al. 7 2 03/27/01 J.J 6 0 8 8 8 Nosov 04/24/01 J.K 6 2 2 0 7 2 2 Begemann FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS TRANSLATION **DOCUMENT PUBLICATION** COUNTRY OR PATENT OFFICE **CLASS SUBCLASS** (YES/NO) DATE NUMBER A61C 3/00 N/A WO 01/24724 04/12/01 International J.L 08/02/01 International **A61N** 5/06 N/A J.M WO 01/54770 WO 01/60280 08/23/01 International A61C 13/15 Abstract only J.N J.O WO 01/64129 09/07/01 International **S61C** 19/00 N/A 6/00 N/A J.P WO 01/68035 09/20/01 International A61K H01L 31/12 N/A 09/20/O1 International J.Q WO 01/69691 OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Tarle, Z. et al., The Effect of the Photopolymerization Method on the Quality of Composite Resin Samples, J. of Oral Rehab. J.R 25: 436-442, 1998 J.S TIR Technologies, Inc., Miniaturized TIR lenses for Light Emitting Diodes, TIR Technical Publication, pgs. 1-14 Uno, Shigeru and Asmussen, Erik, Marginal Adaptation of a Restorative Resin Polymerized at Reduced Rate, Scand J. J.T Dent. Res. 1991; 99: 440-4 **EXAMINER** DATE CONSIDERED

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